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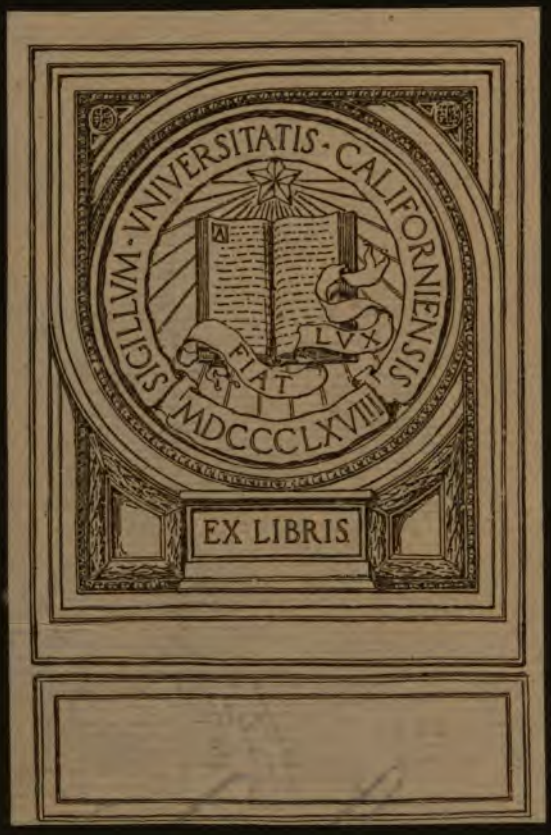

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THE CHIEF CAUSES OF THE FAILURE OF MUNICIPAL TELEPHONES IN GLASGOW

BY

V. M. BERTHOLD

UNIV. OF CALIFORNIA

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RECENT PUBLICATIONS UPON ECONOMICS.

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THE CHIEF CAUSE OF THE FAILURE OF MUNICIPAL TELEPHONY IN GREAT BRITAIN.

Mr. A. N. Holcombe has recently discussed in this Journal[1] the reasons that led to the abandonment of municipal telephone service in Great Britain. Having explained the situation antecedent to the establishment of municipal exchanges, governed largely by the vacillating policy of the British Post-office, which might be fitly described as having played a game of "blind-man's-buff" both with the National Telephone Company and the municipal corporations, the author reaches the following conclusion: "the general abandonment of the municipal telephone undertakings (thus) cannot be adequately explained by any technical or financial weakness for which their managers are responsible, but that the explanation must be sought elsewhere."

The "elsewhere" in the opinion of the writer of the above, or the real cause of the failure of municipal telephone service, was its discouragement by the British government through the failure of the Post-office to enter into an active competition with the National Telephone Company, which, it will be remembered, was its lawfully created licensee and representative.

I do not desire to deny that the action of the British Post-office hurt the municipal telephone traders. But it served only to accentuate the troubles in which they found themselves and hastened the final step,—the abandonment of an unprofitable and losing business. In other words, the managers of the Post-office soon perceived that municipal telephone service was neither a financial nor technical success, and that a triple service would impede instead of assisting the development of telephony in Great Britain.

[1] In Quarterly Journal of Economics for August, 1907, p. 645.

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Mr. Holcombe's conclusion, that the general abandonment of the municipal telephone undertakings cannot be adequately explained by any technical or financial weakness for which the managers were responsible, is a new message to those who have watched and followed the rise and fall of the British municipal telephone service. The inception of that service was not as enthusiastic as might have been inferred from the charge of pronounced and general dissatisfaction with the existing system; for after the pasage of the Act of 1899, when any municipality could have applied to the Post-office for a telephone, only 59 out of the possible total number (1,334) wrote to the Post-office for information, 41 after searching investigation abandoned the scheme, 13 took out a license, and only 6 of these actually proceeded to establish a telephone exchange. Of the latter Tunbridge Wells sold out to the National Telephone Company after an experience lasting but a little over a year.

Of Glasgow, as the largest municipality and making the largest investment and possessing weaknesses common to the other five municipalities, the question may specifically be asked, what were the technical or financial weaknesses for which the managers of the municipal telephone business were directly responsible? Briefly, the answer is:—

(1) Errors in organization. The adoption of exchange system and equipment long discarded as inefficient by progressive telephone engineers.

(2) Errors in estimates and plans. Here the most glaring mistake was the underestimations of the cost of a subscriber's line,—an error due to the advice of the expert, Mr. A. R. Bennett, who in 1896 figured the average cost of a subscriber's line as £17, and changed later on to £18.16.

In May, 1904, the cost per subscriber's line had grown to £34 in the Glasgow exchange.

(3) Errors in rates. Again relying upon the same expert, the municipalities adopted an annual flat rate of £5.5, about one-half that charged by the National Telephone Company. At the Glasgow Telephone Inquiry held by

Sheriff Jameson (September 28–October 4, 1897) Councillor Alexander, member of the Glasgow Corporation Telephone Committee, deposed that:—

> Before making the application for a license, the Corporation Committee had laid before them expert information which satisfied them that an efficient telephone service could be supplied in Glasgow for £5 within a mile.

In response to a question by Mr. Ashe, M.P., if the committee intended to supply this telephone service without imposing any burden on the rates, the committee answered "It is."[1]

(4) Errors in providing none or insufficient amounts for depreciation and sinking fund.

The managers were not without warning, for as early as December, 1901, when the Glasgow exchange had been in operation but seven months, the Marquis G. de la Touanne, a well-known telephone engineer of the French Telegraph & Telephone Department, also a foreign member of the Institute of Electrical Engineers of London, wrote as follows to the London Electrical Review (December 13, 1901):—

> The statement of Mr. Provand in the Times of November 30, that Glasgow is earning a profit on £5.5 subscription leads us of the métier to seek further information, for no other large city has been able to maintain so low a rate. . . . £5.5 less 10% Post-office royalty leaves £4 14*s*. 6*d*. net. I take the ultimate capital cost per subscriber as given by Mr. Provand at £16, but I think no telephone manager will accept 3¼% per annum as a sufficient depreciation. My experience is that if the service is to be kept up to the mark, the instruments and switchboards must be replaced every eight years, which means, say, 12% depreciation. . . . A little more arithmetic shows that every (Glasgow) subscriber who calls forty-seven times daily uses up his subscription price in operator's wages alone.
>
> Then we have also management, technical staff, repairs, rent, lighting, heating, and all the multifarious expenses of a large business enterprise still to come. But that is not all. The subscriber who calls 20, 40, or 80 times daily costs more than £16 in plant. He may cost 25 or 50, and the depreciation on that head is 12%, making

[1] London Electrical Review, October 8, 1897.

with interest 15%. The £5 subscriber will thus cost about £7 per annum for interest and depreciation, say one and one-half times his subscription fee. . . .

Let us now consider the several sorts of error more in detail.

(1) Errors in organization. Immediately after the passing of the statute known as the Telegraph Act (1899), the Corporation of Glasgow, which in 1893 had asked the Postmaster-General for a license, renewed its request for an exchange to embrace the whole of the city of Glasgow and four outlying districts, covering approximately 143 square miles. This license was granted March 1, 1900, and (a fact which should be well borne in mind) at the Corporation's own desire it was made terminable December 31, 1913.

Immediately thereafter the Corporation, under the chairmanship of ex-Bailie James Alexander, an ardent advocate of and believer in municipal telephone service, organized a telephone department and appointed Mr. Alfred R. Bennett chief engineer. By his advice the committee adopted what is commonly known among United States telephone engineers as the Law or call-wire system, in which each subscriber does his own ringing up. As operated in Glasgow, a maximum of twenty subscribers used one wire in common for giving their orders to an operator who, with a receiver held to the ear, watches for calls and makes the desired connection, leaving, however, the ringing up of the party called to the calling party. Omitting a lot of technical troubles inherent in such a system, it is evident to the layman that one line fault might affect as many as twenty subscribers. The common call wire left means of signalling at the mercy of irresponsible persons who considered it a joke to hamper operating work as much as possible. Moreover, whenever the insulation of a subscriber's line became even slightly defective, his line was inoperative.

The Law system was well known in the United States,

where it had been in use in several large exchanges, noticeably Philadelphia and St. Louis. On account of its technical defects it was speedily superseded by the common battery system, with which the Philadelphia exchange was reconstructed as early as 1897. Ever since the Law system has been obsolete in the United States.

It took but two years to demonstrate the inefficiency of the Glasgow plant. Driven by general complaints of bad service, the Telephone Committee, as early as March, 1904, let it be known that a general change of the system was under contemplation.[1] To carry out the reconstruction, the Telephone Committee at the next meeting of the Corporation recommended that they be authorized to borrow an additional £250,000.

The reconstruction of the exchange became so imperative and required such large unremunerative additional investment that the Telephone Committee[2] (July, 1906) recommended the sale of the undertaking to the Post-office for £305,000, the actual expenditure at that date being £360,000. In spite of considerable political pressure the Postmaster-General refused to pay more than £305,000, and added that he could not keep even that offer open for a long time.[3]

That the inefficiency of the plant was one of the main causes that drove the enterprise on the shoals is corroborated by the remarks of Mr. James Alexander. In moving the adoption of the recommendation to sell the telephone undertaking, he said:—

> Another objection to the Corporation continuing to work the telephone service was that it would be necessary to apply to the Secretary of Scotland for power to borrow at least £100,000 in order to make necessary alterations on the switchboard and to carry on the system and meet the capital expenditure necessary in view of the increased number of subscribers. . . . At present the Postmaster-General would acquire all the plant of the undertaking, but if the Corporation continued till 1913 the latter would buy only such plant as was suitable

[1] London Electrician, July 8, 1904.

[2] Ibid., July 6, 1906.

[3] Ibid., July 13, 1906.

for actual requirements at that time of the Post-office. They must therefore keep in view the fact that if they did not now sell to the Post-office, the Postmaster-General in 1911, when he acquired the entire National Company's undertaking, . . . might say to the Corporation that the greater portion of their plant was not suitable for the actual requirements of the Post-office at that date, and that therefore he was not going to acquire it."[1]

(2) Errors in estimates and plans. As has been stated heretofore, the municipal expert had figured at first the cost per subscriber or subscriber's line at £18.16. This appears from the evidence given by Mr. Bennett, in June, 1898, before the Select Committee on Telephones.[2] In spite of the firm persuasion of the municipal expert, the actual cost per subscriber's line after two years' operation of the exchange had risen to £35,[3] exceeding the original estimate by nearly 100 per cent. And at that time the Telephone Committee was already seriously considering the reconstruction of the obsolete system!

On May 31, 1905, the London Electrician published a complete analysis of the Accounts of the Glasgow Corporation Telephone department from 1901 to May 31, 1904, showing that the capital account stood at £350,273, and remarked that "the capital expenditure has, therefore, risen to £36.13 per subscriber, as against £35.8 on May 31, 1904. This increase is intrinsically small, but if the matter is looked into close it is more significant."

(3) Errors in rates. The biggest feather in the municipal telephone cap has always been the offer of a low flat annual subscription. Indeed, without this it is very doubtful whether even the Scottish rate-payers would have taken kindly to the novel experiment. No one person has more persistently advocated low flat rates and asserted that these are remunerative to municipal exchange work

[1] London Electrician, July 13, 1906.

[2] See the Minutes of Evidence taken before the Select Committee on Telephones, June 14, 1898.

[3] London Electrician, March 11, 1904.

than Mr. Bennett, and it is due to his advice that Glasgow adopted the £5.5 flat rate for unlimited use.

Referring to the first annual report of the Glasgow Telephone Committee (September 11, 1903), Mr. Russell seriously warned his fellow-members:—

> Last year's working expenses reached £21,000, making a total expenditure of £47,000 per annum. Now last year's revenue was £35,000, and assuming that they could increase this year's revenue by £5,000 without any increase in the working expenses, they would only bring this year's revenue up to £40,000, leaving a deficiency of £7,000 per annum. Mr. Bennett in Hull, which was a much less expensive place to telephone than Glasgow, recommended the Corporation to make some such annual charge as £5.15 or £5.17, but the Corporation of Hull were going to charge £6.6. It must be evident that it was quite impossible to continue supplying the telephone at the present rental, except at a serious loss to the rate-payers. He advised an advance to £6.6 or £8.8 per annum instead of £5.5 at present.[1]

Again, at the March meeting of the Glasgow Telephone Committee (1904) the subject was forced by Mr. Russell upon the unwilling ears of his fellow-members, the speaker affirming that "the accounts had been kept in a way that even the auditors, for their own credit, had to protest against it."[2] A few months later (February, 1905) the palpable inefficiency of the plant made a new loan for reconstruction imperative, and here Mr. Bruce Murray came to the front, exposing the situation:[3]—

> The whole method adopted by the committee from the day they began had been one of secrecy from both the Corporation and the public. . . . They expected to distract attention from the gross inaccuracies of their preliminary estimates and from the fact that the £5 *rate was not paying.*

The same urgent demand that the Telephone Committee "should immediately give notice of an increased rate" to avoid a serious loss on the undertaking was reiterated

[1] London Electrician, September 11, 1903.
[2] Ibid., March 11, 1904.
[3] Ibid., February 3, 1905.

by Mr. Russell at the meeting of the Glasgow Corporation (September, 1905), and, as usual, went unheeded.

Finally, in July, 1906, came the denouement. The London Electrician (July 13, 1906) editorially commented on the sale of the exchange as follows:—

> From the reports that have now come in, it appears that the Corporation has been in a difficult position. . . . From the negotiations that have taken place it appears that the Glasgow Corporation have a deep-rooted objection to anything in the shape of a private monopoly. . . . It is a question, however, whether the objection is worth paying for; at least heavily. The purchase price to be given by the Post-office for the telephone system is £305,000, involving the Corporation in a loss of about £15,000, whereas the National Telephone Company seems to have made an offer to buy the system at such a price that no loss would fall on the Corporation. But the idea of the municipal telephones forming part of a private monopoly was not to be tolerated, . . . and the Corporation are to sell at a loss.[1]

There is but one other fact worth mentioning, that the Postmaster-General refused point blank to bind himself to continue in future the low flat rate, the great drawing card of the Municipal Telephone Committee, the corner-stone of the enterprise.[1]

(4) Errors in providing none or insufficient amounts for depreciation and sinking funds. That a body of Town Councillors, entirely unacquainted with the intricacies of managing a telephone exchange service, should have erred in neglecting to provide a proper depreciation is not astonishing, though the expert adviser would have done well to instruct the Telephone Committee. On the other hand, it was Mr. Bennett who decided on the period for which the sinking fund should be calculated. At the Glasgow Telephone Inquiry (October 5, 1897) he was asked by Mr. Salvesen, the attorney for the Corporation:—

> "What was the sinking fund which you had in view to cover?"
>
> Answer.—"It was intended to cover the capital expenditure at the end of twenty-one years."
>
> Q. by Mr. S.—"But the license had only fourteen years to run?"

[1] London Electrician, September 14, 1906, p. 869.

Answer.—"But it is not regarded as probable that at the expiry of the license the Corporation's plant would become valueless. It is not at all certain that the Post-office would refuse to take over the Corporation's plant at a reasonable charge."

As a matter of fact, the license, as has already been mentioned; at the request of the Corporation, had been made terminable December 13, 1913. In spite of this the Telephone Committee wrote down the enterprise on the basis of a thirty years' sinking fund.[1] The necessity of a proper depreciation and sinking fund was clearly pointed out by Bailie Burrell, at the discussion of the first Annual Report of the Telephone Committee (September, 1903).[2] He called attention to that clause in their license which contained the conditions of purchase by the Post-office of the plant of the licensee December, 1913. The Postmaster-General bound himself to buy only such plant as would be suitable for the actual requirements at the expiration of the license. The speaker then asked the pertinent question:—

Were the Government, for instance, likely to take over the switchboards, which, as the engineer informed them, had a life of but 10 years? The corporation had exactly 10 years of their license to run. The life of the instruments might also be well placed at 10 years But the cost of their present switchboard and instruments was £80,000, and for this they could not reasonably expect to get anything from the Government. Figuring in other similar items, the total amounted to £101,000 for which not a single farthing might be received at the sale of the plant. Deducting this from the Capital Value £271,000 left £170,000, and how much of that sum might the Government find suitable in 1913? By that time the plant would be 10 years old. Taking the average at 11 years, and applying a depreciation but 3% over 11 years, this meant a reduction of 33%, and deducting one-third as depreciation (57,000) left £113,000, and this amount they might expect to receive from the Government in 1913. Consequently, they should write off between 1903 and 1913 in some way the difference between the cost of the undertaking £271,000 and the amount they were likely to receive. In other words, they should write off £158,000 or £15,800 on an average for 10 years. The accounts for the year showed that they had but £9,800. How then could they do that out of the profits of the undertaking? Surely the time had

[1] London Electrician, March 11, 1904. [2] Ibid., September 11, 1903.

come when either a depreciation fund ought to be started or a much more adequate amount be placed to reserve.

Such sane counsel fell upon deaf ears, the chairman of the Telephone Committee replying "that all they were called upon to do was to write down, by sinking fund, by depreciation, or by reserve, a sum sufficient to meet such depreciation as would exist in the opinion of the representatives of the Government when the time for selling came."

From the above it is evident that up to September, 1903, the Telephone Committee had not seen fit to charge the accounts of the enterprise with one cent of depreciation. The London Electrician (October 23, 1903, p. 3) editorially referred to this grave error, both in the case of the Hull and the Glasgow municipal exchanges:—

> The Hull Corporation should write off heavy sums for depreciation, sufficient to pay off the greater part of its capital by 1911. But if it does this it will be difficult, each year, to make both ends meet, and the undertaking will become a burden on the rate-payers. . . . This difficulty has been evaded for the present in Glasgow, for instance, by writing off nothing for depreciation (in fact there the capital account was even swelled by including in it the cost of canvassing), but evidently this is merely deferring the day when the rates will be called upon to pay the cost of an unsuccessful experiment.

When the Glasgow Telephone Committee issued the Third Annual Report of the undertaking for the year ended May 31, 1904, the auditors felt compelled to state in their certification as to the correctness of the accounts, "The foregoing Capital and Revenue Accounts and Balance Sheets are correct, subject to the question of the sufficiency of the provision for depreciation." [1]

After the issuance of the Annual Report of the Glasgow Telephone Committee for the year ended May 31, 1905, the last report prior to the sale of the municipal exchange, the London Electrician published a complete analysis of the accounts of the Glasgow Corporation Telephone

[1] The Corporation of Glasgow—Telephone Department—Capital Account and Balance Sheet, 31 May, 1904, p. 10.

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Department. From this only a few lines need to be quoted: "Out of the balance of £20,746, £19,242 has to be paid as Interest and Sinking Fund, leaving a net balance of £1,504, which is all that is set aside as depreciation. This is less than ½% of the Capital Expenditure." [1]

As has already been stated, the inevitable result due to the failure of setting aside a sufficient annual depreciation and sinking fund was a dead loss to the tax-paying community of £55,000.

The Glasgow Telephone Committee up to the last moment refused to learn from the experience of expert telephone engineers. In the words of their chairman, they "regretted that the Chancellor of the Exchequer and the Postmaster-General had not seen their way to give the Corporation back every penny of their money, but if the Corporation continued till 1913 the Postmaster-General would buy only such plant as was suitable for actual requirements, . . . and then in 1913 (he) might say that the greater portion of their plant was not suitable for the actual requirements, of the Post-office, at that date." [2]

It may now be left to the judgment of the reader whether the general abandonment of the municipal telephone undertakings in Great Britain can or cannot be adequately explained by *any* technical or financial weakness for which their managers were responsible, and whether or not it is necessary to seek an explanation elsewhere. No doubt the shifting policy of the English government contributed to hasten the ultimate result, but every careful student of the origin and management of the municipal exchanges in Great Britain will be driven to the conclusion that, sooner or later, these enterprises were doomed to ruin on account of the technical and financial weakness with which they were launched.

VICTOR M. BERTHOLD.

NEEDHAM, MASS.

[1] London Electrician, September 15, 1905, p. 867.

[2] Ibid., July 13, 1906, p. 515.

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